Compact, Energy Efficient AMOLED Power Chip Increases Battery Life for Super-Slim 3G Smartphones

STMicroelectronics is powering the AMOLED and Super AMOLED displays that enable today's advanced handheld devices to deliver high-quality web and video experiences on the move, with a family of ICs consolidating all the display module's power requirements in a single chip.

AMOLED (Active-Matrix Organic LED) technology enables sharp and vibrant images for mobile multimedia devices such as 3G smartphones and digital-still cameras. These devices do not use backlighting and so offer key advantages over active-matrix LCDs, in terms of power saving and extremely low profile: typical thickness for AMOLED devices is now less than 1mm for the entire display module allowing stylish and space-efficient new designs. iSuppli has predicted annual shipments of phones with AMOLED displays will grow to more than 180 million by 2014.

ST is the major provider of power-supply ICs for AMOLED displays. Its latest STOD03A provides the needed positive and negative supply voltages from a single chip, and improves on the performance of the well established STOD02. Only six external components are needed to complete the power-supply circuitry. Alternative approaches require more components and use more power, making ST's solution the most attractive for handset builders.

The STOD03A uses highly efficient synchronous operation for both voltage outputs, achieving up to 85% overall efficiency for longer overall battery life. Other power-saving features include automatic pulse-skipping operation for low power consumption at light loads, and a true shutdown mode drawing less than one microamp activated through the enable pin (EN).

ST has achieved its high performance using its Silicon-On-Insulator (SOI) technology as part of its latest-generation BCD fabrication process, which enables analog, digital and closely spaced high-power circuitry to be built on the same chip.

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